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Alion, Sencor, and Sharpen for Preemergence Kochia Control in an Abandoned Alfalfa Field

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Abstract

Alion (indaziflam) combined with Sencor (metribuzin) were the most effective herbicides for kochia control. Sharpen (saflufenacil) alone or with Prowl H2O (pendimethalin), Sencor, or Alion was less effective at controlling kochia compared to Alion plus Sencor. By 91 days after treatment (DAT), Alion at rates above 3 oz/a plus Sencor were more effective than lower rates for kochia control. However, all Alion plus Sencor treatments were better than Sharpen-containing tank mixes 91 DAT.

Keywords

weed control, preemergence applications, kochia, abandoned alfalfa field, alfalfa, Alion, Indazaflam, Sencor, metribuzin, Sharpen, Saflufenicil

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R. Currie and P. Geier

Summary

Alion (indaziflam) combined with Sencor (metribuzin) were the most effective herbicides for kochia control. Sharpen (saflufenacil) alone or with Prowl H_2O (pendimethalin), Sencor, or Alion was less effective at controlling kochia compared to Alion plus Sencor. By 91 days after treatment (DAT), Alion at rates above 3 oz/a plus Sencor were more effective than lower rates for kochia control. However, all Alion plus Sencor treatments were better than Sharpen-containing tank mixes 91 DAT.

Introduction

Alion and Sharpen are not currently labeled for use in alfalfa. Both compounds have shown excellent results for weed control in turf, crop land and/or perennial crops. Little data are available on the effects of these compounds on alfalfa. Therefore, it was the objective of this research to measure weed control and alfalfa injury in a fallow field containing a sparse population of alfalfa.

Procedures

An experiment was conducted at the Kansas State University Southwest Research-Extension Center near Garden City, KS, to examine the efficacy of Alion at four rates with Sencor compared to standards for preemergence kochia control. The site was an abandoned alfalfa field with a dense natural population of kochia. Herbicides were applied March 11, 2015, using a tractor-mounted, CO_2-pressurized sprayer delivering 20 gpa at 30 psi and 3 mph. A few kochia seedlings had emerged by this date, and were in the cotyledon stage and less than 1 inch tall. The majority of the kochia had not emerged prior to application. Rainfall totaled 1.24 inches within 37 days of herbicide application, and was supplemented with 1.0 inches of overhead irrigation during this same time. Soil was a Ulysses silt loam with 1.4% organic matter, pH of 8.0, and cation exchange capacity of 18.4. Plots were 10 by 60 feet and arranged as a randomized complete block replicated four times. Kochia control was visually determined 6, 14, 21, 30, 61, and 91 days after treatment (DAT).

Results and Discussion

Too little of the alfalfa remained in the stand to draw strong conclusions about the safety of these compounds for use in this crop. Limited observations suggest that there might be little injury from their use and that additional research should be conducted. The level of control supplied by the Sencor treatments on emerged kochia is normally not observed. It is assumed that the timeliness of the rainfall and overhead irrigation or some interaction of the other tank mix partners lead to the excellent level of control provided. This should be viewed as abnormal until further confirming work is done. Alion at 2, 3, 4 or 5 oz/a combined with Sencor at 10.7 oz/a was generally the most effective herbicide unit for kochia control at 14, 21, 30, and 61 DAT. Sharpen alone or with Prowl H_2O, Sencor, or Alion was less effective at controlling kochia compared to Alion plus Sencor at these dates. By 91 DAT, Alion at 3, 4, and 5 oz/a plus Sencor were more effective than the 2 oz/a rate for kochia control. However, all Alion plus Sencor treatments were better than Sharpen-containing herbicides at 91 DAT.

Table 1. Application information.

Application date	March 11, 2015
Air temperature (°F)	62
Relative humidity (%)	35
Soil temperature (°F)	24
Wind speed (mph)	0 to 3
Wind direction	North
Soil moisture	Fair

Table 2. Alion, Sencor, and Sharpen for preemergence kochia control in an abandoned alfalfa field.

		Kochia					
Treatment	Rate[a]	6 DAT[b]	14 DAT	21 DAT	30 DAT	61 DAT	91 DAT
		% control					
Alion Sencor	2.0 oz 10.7 oz	58	94	97	97	95	75
Alion Sencor	3.0 oz 10.7 oz	65	92	96	97	93	80
Alion Sencor	4.0 oz 10.7 oz	63	93	99	98	96	83
Alion Sencor	5.0 oz 10.7 oz	50	90	95	98	95	80
Valor Sencor	4.0 oz 10.7 oz	48	83	93	94	83	60
Sharpen MSO Concentrate AMS	2.0 oz 1% 2%	55	68	68	55	50	43
Sharpen Prowl H_2O MSO Concentrate AMS	2 oz 48 oz 1% 2%	58	75	83	79	60	48
Sharpen Sencor MSO Concentrate AMS	2 oz 8 oz 1% 2%	58	88	94	90	75	60
Sharpen Alion	2.0 oz 2.0 oz	43	48	58	53	50	53
Untreated	---	0	0	0	0	0	0
LSD (0.05)		8.6	6.1	4.0	4.7	5.3	4.7

[a] Methylated seed oil concentrate (MSO concentrate) rate is % V/V and ammonium sulfate (AMS) rate is % W/V.
[b] DAT is days after treatment.

Figure 1. Untreated control.

Figure 2. Alion 2 oz + Sencor 10.7 oz 44 days after treatment.

Figure 3. Alion 3 oz + Sencor 10.7 oz 44 days after treatment.

Figure 4. Alion 4 oz + Sencor 10.7 oz 44 days after treatment.

Figure 5. Alion 5 oz + Sencor 10.7 oz 44 days after treatment.